claims

1. A combustion control method for a burner including the steps of:

a given amount of fuel oil is supplied to a fuel oil atomizing means by a fuel supplying means;

the atomized fuel oil gas is spouted by the fuel oil atomizing means;

the atomized fuel oil gas is ignited by a igniter;

combustion is facilitated by air blown by an air blowing means;

wherein the outputting flow rate of fuel oil and the outputting flow rate of air are adjusted automatically, simultaneously and proportionally by controlling the rotating speed of the motors of the fuel supplying means and the air blowing means.

2. The combustion control method for burner according to claim 1, wherein said simultaneous and proportional control method is achieved calculating the flow rate of air and the flow rate of fuel oil in accordance with the preset air/oil ratio, said air/oil ratio is calculated based on a specific relational curve which is a relational curve between required flow rate of outputting flow rate of the fuel oil by the fuel supplying means and flow rate of air blown by the air blowing means in order to achieve optimal combustion effect.

3. The combustion control method for burner according to claim 2, wherein said combustion control method is implemented by an automatic control program which adjusts the outputting flow rate of the fuel oil and flow rate of air in accordance with the air/oil ratio, the automatic control program including the following steps:

the step of determining the atomized gas pressure, for determining whether it has achieved the preset value, if not then the ignition can't be conducted;

the step of determining the back pressure of the spray gun, for determining whether the atomized fuel oil gas pressure is within the preset range;

the step of determining flame ignition, for determining whether the igniter is ignited, if it is the case, then the fuel supplying means is regulated to output the fuel oil;

the step of determining ignition of the fuel oil, for determining whether the flame of fuel oil is ignited, if it is the case, then calculating required flow rate of air based on preset air/oil ratio and the outputting flow rate of the fuel oil, and regulating the air blowing means to blow air;

the step of determining the switch of the fuel oil, for determining whether the kind of fuel oil is changed, and calculating required flow rate of air based on corresponding preset air/oil ratio, and regulating the air blowing means to blow air.

4. The combustion control method for burner according to claim 2, wherein said combustion control method includes the following step of automatic operation:

the step of ignition and startup, in which the pressure signal of the atomized gas is obtained automatically, if the pressure value doesn't reach the preset value, the igniter is regulated not to spout combustible gas and ignited;

the step of the spouting of the atomized fuel oil gas, in which the back pressure value in the fuel oil atomizing means and the flame signal of the igniter are obtained automatically, the igniter is controlled to be started, thereby igniting the atomized fuel oil gas from the fuel oil atomizing means;

the step of adjusting automatically the outputting flow rate of the fuel oil, in which adjusting signal of the flame is obtained automatically, the fuel supplying means is regulated to output fuel oil to the fuel oil atomizing means based on the signal;

the step of controlling the switch of the fuel oil, for determining the case that the kind of fuel oil is varied, and calculating required flow rate of air based on preset corresponding air/oil ratio, and regulating the air blowing means to blow air.

the step of adjusting automatically the flow rate of air , in which required flow rate of air is calculated based on the outputting flow rate of the fuel oil as well as preset air/oil ratio, and the air blowing means is regulated to blow air.

5. The combustion control method for burner according to claim 3 or 4 further includes the step of modifying the air/oil ratio, for re-setting the air/oil ratio and

calculating required flow rate of air based on the new air/oil ratio, and regulating the air blowing means to blow air.

6. The combustion control method for burner according to claim 3 or 4 further includes the step of determining the variation of the flame intensity, for determining the signal of variation of the flame intensity, correspondingly adjusting outputting flow rate of the fuel oil, and calculating required flow rate of air based on the air/oil ratio, and regulating the air blowing means to blow air.

7. The combustion control method for burner according to claim 3 or 4 further includes the step of monitoring the operation state of the system, for determining atomized gas pressure, fuel pressure, flame condition, the state of fuel oil atomizing means, flame opening, air/oil ratio as well as temperature control signal, and showing them out.

8. The combustion control method for burner according to claim 7 further includes the step of alarming, for receiving abnormal signal from the step of monitoring operation state of the system, and giving out sound/light alarm.

9. The combustion control method for burner according to claim 3 or 4, wherein said step of determining the switch of the fuel oil further includes the step of determining fuel oil atomized gas pressure and the step of determining fuel oil switching valve, for determining operation state of the fuel oil atomizing means, and determining the switch state of the fuel oil switching valve, thereby determining the variation of the kind of the fuel oil.

10. The combustion control method for burner according to claim 3 or 4, wherein said combustion control method may modify randomly air/oil ratios of the various fuel oils, and control automatically flow rate of the fuel oil output by the fuel supplying means and flow rate of air blown by the air blowing means.

11. The combustion control method for burner according to claim 3 or 4, wherein in said combustion control method, the step of igniting is further controlled based on obtained flame signal and preset relevant parameters, in which it is

automatically reignited after the flameout.

12. The combustion control method for burner according to claim 3 or 4, wherein in said combustion control method, the output of the atomized fuel oil gas is further controlled based on obtained flame signal and preset relevant parameters.

13. The combustion control method for burner according to claim 3 or 4, wherein in said combustion control method, automatic closed loop temperature control is achieved by obtaining temperature signal.

14. The combustion control method for burner according to claim 3 or 4, wherein in said combustion control method, various fuel oils can be automatically switched.

15. An autocontrol burner includes a main body, a fuel supplying means, an air blowing means, a fuel oil atomizing means and a igniter, wherein it further includes a controller, a motor speed controller and a signal acquisition assembly, in which the fuel supplying means and the air blowing means are connected with the controller via the motor speed controller, the signal output port of the signal acquisition assembly is connected with the signal input port of the controller, flow rate of fuel oil output by the fuel supplying means and flow rate of air blown by the air blowing means are adjusted automatically, simultaneously and proportionally by said controller based on preset air/oil ratio.

16. The autocontrol burner according to claim 15, wherein said fuel supplying means is a gear or screw type oil pump, and the air blowing means is a blower fan, and the fuel oil atomizing means is an internal-mixing type pneumatic atomizing spray gun, and the igniter is a gas ignition gun, and the signal acquisition assembly includes a flame monitor, an oil pressure transmitter and an atomized gas pressure switch etc, and the signal acquisition end of the flame monitor is located nearby the position of flame jet, and the oil pressure transmitter is located at the inlet of the oil way of the spray gun, the atomized gas pressure switch is locate at the inlet of the atomized gas, and said motor speed controller is an AC converter or DC motor

governor, or AC motor electromagnetic governor.

17. The autocontrol burner according to claim 15, wherein said controller is a programmable controller, or an industrial control unit.

18. The autocontrol burner according to claim 16, wherein said controller includes a program control unit, which further includes:

an atomized gas pressure determining unit for determining whether the atomized gas pressure reaches preset value, if not, then it can't be ignited;

a spray gun back pressure determining unit for determining whether atomized fuel oil gas pressure is within the presetting range;

a flame ignition determining unit for determining whether the ignition gun is ignited, if it is the case, regulating the fuel pump and the fuel injecting valve to output fuel oil ;

a fuel oil ignition determining unit for determining whether the flame of fuel oil is ignited, if it is the case, then calculating required flow rate of air based on preset air/oil ratio and outputting flow rate of the fuel oil, and regulating the blower fan to blow air;

a fuel oil switch determining unit for determining whether the kind of fuel oil is varied, and calculating required flow rate of air based on corresponding preset air/oil ratio, and regulating the blower fan to blow air.

19. The autocontrol burner according to claim 16, wherein the control unit of said controller further includes an air/oil ratio modifying and determining unit for re-setting the air/oil ratio randomly, and calculating required flow rate of air based on outputting flow rate of the fuel oil and new air/oil ratio, and regulating the rotation speed of said blower fan to adjust flow rate of air.

20. The autocontrol burner according to claim 16, wherein said program control unit further includes a flame intensity variation determining unit for determining the signal of variation of flame intensity, and correspondingly adjusting outputting flow rate of the fuel oil, and calculating required flow rate of air based on

air/oil ratio, and regulating the blower fan to blow air.

21. The autocontrol burner according to claim 16, wherein said controller further includes a system operation state monitoring unit, for determining atomized gas pressure, fuel pressure, flame condition, state of the spray gun, flame opening, air/oil ratio as well as temperature control signal, and showing the operation state out by a information inputting/displaying means.

22. The autocontrol burner according to claim 21, wherein said controller is further connected with an alarm means, for receiving abnormal signal from system operation state monitoring unit, and giving out sound/light alarm.

23. The autocontrol burner according to claim 18, wherein said fuel oil switch unit further includes a fuel oil pressure determining unit and a fuel oil switching valve determining unit, for determining the operation state of the fuel oil atomizing means, and determining the switch state of the fuel oil switching valve, thereby determining whether the kind of fuel oil varies.

24. The autocontrol burner according to any one of claims 15 to 23, wherein there is an electromagnetic valve as an ignition gas valve in the pipeline connecting the ignition gun, and there is an electromagnetic valve as an atomized gas valve in the pipeline connecting atomized gas pressure switch with the spray gun, and there is an electromagnetic valve as a fuel injecting valve in the pipeline connecting the oil pump with the input port of the spray gun, in which the signal input port of said ignition gas valve, said atomized gas valve and said fuel injecting valve is respectively connected with the signal output port of the controller, and the signal output port of said controller is further connected with an electromagnetic valve as an fuel oil switching valve, and the input port of the fuel oil switching valve is respectively connected with pipelines for various kinds of fuel, and the output port thereof is connected with the input port of the oil pump.

25. The autocontrol burner according to claim 24, wherein said controller is connected with an information inputting/displaying means.

26. The autocontrol burner according to claim 25, wherein signal input port of said controller is connected with a temperature controlling instrument.

27. The autocontrol burner according to claim 26, wherein said control unit further includes a temperature self-controlling unit for judging the signal from the temperature controlling instrument, thereby achieving closed loop temperature control of the autocontrol burner.